

Operator's Manual Model 450 Snowblower

**TWO-STAGE
3.5 HP SNOWBLOWER
MFG. NO. 1691416
MFG. NO. 1691417**

Simplicity

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Service Parts

Listed below are part numbers for the more common maintenance items. Use the order form at the back of the manual to order a complete, illustrated manual. Use only Genuine *Simplicity* Replacement Parts to assure optimum performance and safety.

MAINTENANCE ITEMS

DESCRIPTION	PART NUMBER
<i>Simplicity</i> Brand SAE 5W30-Cold Weather Engine Oil (case of 12 qts.)	1685518 (case of 12 qts. - see your dealer for individual quarts)
Worm Gear Oil (1 Qt.) For Worm Gear Box	118065
Grease Gun Kit Use for lubrication - see page 12.	1685510
8 Oz. Lithium Grease Tube for above	103077
Touch-Up Paint	
Orange Spray Paint	1685558
White Spray Paint	103049
Touch-Up Daubers	1685562 (6 orange and 6 white - see your dealer for individual daubers)
Gas Can, 2½ Gal.	1685555
Gas Can, 5¼ Gal.	1685556
Drift Cutter Kit	1685189

REPLACEMENT PARTS

DESCRIPTION	PART NUMBER
Knob, Chute Control	1668190
Pushnut (for Chute Control Knob)	1960093
Shear Pin, Auger	1668344
Cotter Pin (for Shear Pin)	918447
Keys, Ignition	122203
Belt, Auger Drive	1674312
Handle Grip	1676954

**USE ONLY GENUINE SIMPLICITY
REPLACEMENT PARTS**
Available through your local authorized
Simplicity dealer.

Identification & Accessories

Record your model and serial numbers here for reference.
The snowblower I.D. tag is located on rear of frame.

Snowblower I.D. Number

Snowblower Serial Number

Engine Model and Type

Engine Serial Number

(See engine Owner's Manual for location of serial number).

See your dealer to purchase any of the following accessories for your snowblower.

Electric Starter Kit (120V AC):

Offers operator the convenience of electric starting.



WARNING

This unit is a "two-stage" snowblower. The first stage is the auger, which feeds the snow back into the impeller housing. The second stage is the impeller which throws the snow out the discharge chute. If bodily contact is made with the auger or impeller when they are rotating, severe personal injury will occur. To avoid injury, keep others and yourself away from the auger and the discharge chute whenever the engine is running. See Safety Rules on the following pages.



WARNING

To avoid serious injury do not put your hands into the auger housing or discharge chute. If auger stalls or chute plugs, use the following procedure to remove objects or clear the chute.

1. Release drive lever.
2. Shut off the engine and disconnect the spark plug wire.
3. Wait for moving parts to stop.
4. Use a narrow board to remove foreign objects and clear the chute. Never put your hands into the auger or discharge chute, because tension buildup due to plugging could cause parts to rotate upon clearing.

Safety Rules



Read these safety rules and follow them closely. Failure to obey these rules can result in loss of control of machine, severe personal injury to yourself or bystanders, or damage to property or equipment affecting safety. The triangle in the text signifies important cautions or warnings which must be followed.

TRAINING

- Read the operating and service instruction manual carefully. Be thoroughly familiar with the controls and the proper use of the equipment. Know how to stop the unit and disengage the controls quickly.
- Never allow children to operate the equipment. Never allow adults to operate the equipment without proper instruction.
- Keep the area of operation clear of all persons, particularly small children, and pets.
- Exercise caution to avoid slipping or falling, especially when operating in reverse.

PREPARATION

- Thoroughly inspect the area where the equipment is to be used and remove all doormats, sleds, boards, wires, and other foreign objects.
- Disengage clutch before starting the engine (motor).

- Do not operate the equipment without wearing adequate winter outer garments. Wear footwear that will improve footing on slippery surfaces.
- Handle fuel with care; it is highly flammable.
 - a. Use an approved fuel container.
 - b. Never add fuel to a running engine or hot engine.
 - c. Fill fuel tank outdoors with extreme care. Never fill fuel tank indoors.
 - d. Replace gasoline cap securely and wipe up spilled fuel.
- Use extension cords and receptacles as specified by the manufacturer for all units with electric drive motors or electric starting motors.
- Never attempt to make any adjustments while the engine (motor) is running (except when specifically recommended by manufacturer).

Safety Rules

- Let engine (motor) and machine adjust to outdoor temperatures before starting to clear snow.
- Always wear safety glasses or eye shields during operation or while performing an adjustment or repair to protect eyes from foreign objects that may be thrown from the machine.

OPERATION

- Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.
- Exercise extreme caution when operating on or crossing gravel drives, walks, or roads. Stay alert for hidden hazards or traffic.
- After striking a foreign object, stop the engine (motor), remove the wire from the spark plug, thoroughly inspect the snowthrower for any damage, and repair the damage before restarting and operating the snowthrower.
- If the unit should start to vibrate abnormally, stop the engine (motor) and check immediately for the cause. Vibration is generally a warning of trouble.
- Stop the engine (motor) whenever you leave the operating position, before unclogging the collector/impeller housing or discharge guide, and when making any repairs, adjustments, or inspections.
- When cleaning, repairing, or inspecting, make certain the collector/impeller and all moving parts have stopped.

Disconnect the spark plug wire and keep the wire away from the plug to prevent accidental starting.

- Do not run the engine indoors, except when starting the engine and for transporting the snowthrower in or out of the building. Open the outside doors; exhaust fumes are dangerous.
- Do not clear snow across the face of slopes. Exercise extreme caution when changing direction on slopes. Do not attempt to clear steep slopes.
- Never operate the snowthrower without proper guards, plates, or other safety protective devices in place.
- Never operate the snowthrower near glass enclosures, automobiles, window wells, drop-offs, and the like without proper adjustment of the snow discharge angle. Keep children and pets away.
- Do not overload the machine capacity by attempting to clear snow at too fast a rate.
- Never operate the machine at high transport speeds on slippery surfaces. Look behind and use care when backing.
- Never direct discharge at bystanders or allow anyone in front of unit.
- Disengage power to the collector/impeller when the snowthrower is transported or not in use.
- Use only attachments and accessories approved by the manufacturer of the snowthrower (such as counterweights and the like).

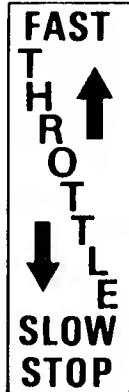
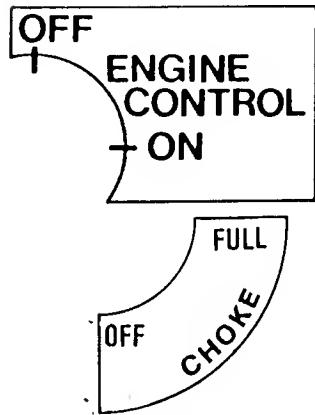
Safety Rules

- Never operate the snowblower without good visibility or light. Always be sure of your footing, and keep a firm hold on the handles. Walk; never run.

MAINTENANCE & STORAGE

- Check shear pins and other bolts at frequent intervals for proper tightness to be sure the equipment is in safe working condition.
- Never store the machine with fuel in the fuel tank inside a building where ignition sources are present such as hot water and space heaters, clothes dryers, and the like. Allow the engine to cool before storing in any enclosure.
- Always refer to operator's guide instructions for important details if the snowblower is to be stored for an extended period.
- Maintain or replace safety and instruction labels, as necessary.
- Run the machine a few minutes after throwing snow to prevent freeze-up of the collector/impeller.

Safety Decals



Safety Decals

Safety warning signs are placed at strategic locations on the snowthrower as a constant reminder to the operator of the most important safety precautions. All Warning, Caution, and instructional messages on your snowthrower should be carefully read and obeyed.

If any of these signs are lost or damaged, replace them at once. They can be purchased from your dealer.

Operation

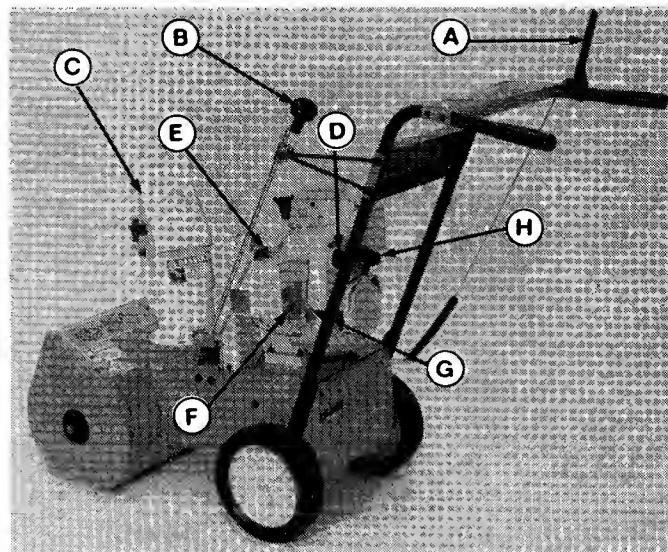


Figure 1. Controls

ITEM	NAME	FUNCTION
A	Auger Control Clutch Lever	Engages auger/impeller when depressed; disengages when released.
B	Chute Control Rod	Controls direction snow is thrown.
C	Discharge Chute Deflector	Controls angle snow is thrown.

ITEM	NAME	FUNCTION
D	Primer Button	Primes carburetor.
E	Choke	Enriches fuel supply.
F	Ignition Switch	Allows starting and stopping of engine.
G	Throttle Lever	Controls engine speed.
H	Starter Handle	Used to start engine.



WARNING

Before leaving the operator's position for any reason, such as to make an adjustment or clear the chute, stop the engine and remove the key. Disconnect the spark plug wire and secure away from plug to prevent accidental starting.

PRE-USE CHECK OF CONTROLS

1. Check discharge control rod for proper function. Check to make sure sprocket teeth on lower chute control rod fully engage holes in flange around bottom of discharge chute. The bracket that holds lower chute control rod is slotted and can be moved up or down to obtain full engagement of sprocket teeth. Make sure upper and lower chute control rods are properly assembled.
2. Adjust the chute deflector for desired angle of discharge.
3. After servicing engine and before beginning snow removal, check controls again with engine running. Be sure auger stops when clutch lever is released. If not, see Belt Adjustment in Service section.
4. Be sure rubber part of auger touches the surface. If not, see Scraper Bar Adjustment.
5. Check to make sure spark plug wire is attached to plug and plug is tightened securely into engine. Refer to Engine Manual for spark plug torque.

BEFORE STARTING ENGINE

1. Check engine oil level; add oil as needed.

NOTE

New engine is supplied with NO OIL. Be sure oil has been added (see Engine Manual for proper procedure.)



WARNING

Gasoline is highly flammable and must be handled with care. Never fill the tank when the engine is hot or running. Always move the unit outdoors to fill the tank. Keep snowblower and gasoline away from open flame or spark.

2. Fill gas tank with clean, fresh, lead-free grade automotive gasoline. Low-lead or regular grade gasoline is an acceptable substitute.

TO START ENGINE

NOTE

Also read the starting instructions in your Engine Owner's Manual.

1. Rotate ignition switch key (F, figure 1) clockwise to ON position.
2. Move throttle control lever (G, figure 1) to FAST position.
3. Move choke knob (E, figure 1) to FULL CHOKE position. Do not choke a warm engine.
4. Push primer button (D, figure 1) two times. Do not prime a warm engine.

Operation



WARNING

Never run engine indoors or in enclosed, poorly ventilated areas. Engine exhaust contains CARBON MONOXIDE, an ODORLESS, DEADLY GAS.

Keep hands, feet, hair and loose clothing away from any moving parts on engine and snowblower.

WARNING - Temperature of muffler and nearby areas may exceed 150° F. Avoid these areas.

5. Pull starter handle (H, figure 1) rapidly or push starter button if equipped. Do not allow starter handle to snap back. Allow starter rope to rewind slowly while keeping a firm hold of starter handle.
6. As engine warms up and begins to operate evenly, move choke lever slowly to OFF position. If engine falters, return to $\frac{1}{2}$ choke until it runs smoothly, then move to OFF choke position.

NOTE

Allow the engine to warm up for a few minutes as the engine will not develop full power until it reaches operating temperature.

7. Run engine at or near top speed.

8. Before stopping engine, pull the starter rope twice and allow to rewind slowly. Then, stop engine. This will help prevent freeze-up.
9. To stop engine, move throttle control lever to STOP position and move ignition switch key to OFF position.

Important: After each use of the snowblower, stop the engine, remove the ignition key, remove all accumulated snow from the snowblower and wipe clean. Store the snowblower in a protected area.

SNOWBLOWER OPERATION

The most effective use of the snowblower will be established by experience, taking into consideration the terrain, wind conditions and the depth and weight of the snow. It is the wind conditions and building location which will determine the direction of the discharge chute.

NOTE

Do not throw snow towards a building as hidden objects could be thrown with sufficient force to cause damage.

1. Start the engine as described in paragraph To Start Engine.
2. Using the chute control rod (B, figure 1), position the discharge chute so as to discharge the snow with the wind.
3. Press the auger clutch on right hand grip to begin auger rotation. The rotation of the auger will propel the unit forward, as rubber portion strikes the surface.

4. If snow is deep or wet, use less than full width of auger. Also, let the snowblower work at its own pace. If the engine RPM drops in deep snow, proceed slower. If the snow stops flowing freely, stop or back up to let the snowblower clear itself.
5. To disengage the drive mechanism: Release the clutch lever.

NOTE

Adjustment of v-belt may be necessary after a normal break-in period of 2 to 4 hours of use. See Belt Adjustment paragraph in Service section of this manual.

AFTER EACH USE.

1. To help prevent possible freeze-up of rewind starter, proceed as follows after each snow blowing job:
With engine running, pull starter rope hard with a continuous full arm stroke three or four times. Pulling of starter rope will produce a loud clattering sound. This is not harmful to the engine or starter.
2. Allow engine to run for a couple of minutes then turn ignition off and remove key to prevent unauthorized use.
3. Clean snow and ice from snowblower, especially the controls. Move levers a few times to prevent freezeup.
4. If snowblower is kept in a cold storage area, fill gas tank to prevent condensation after engine has cooled.

Normal Care

The snowthrower should be immediately prepared for storage at the end of the season or if the snowthrower is to be unused for 30 days or more.

WARNING

Never store engine with fuel in tank indoors or in enclosed, poorly ventilated enclosures, where fuel fumes may reach an open flame, spark or pilot light as on a furnace, water heater, clothes dryer, etc.

Handle gasoline carefully. It is highly flammable and careless use could result in serious fire damage to your person and/or property.

Drain fuel into approved container outdoors, away from open flame.

ENGINE STORAGE

Gasoline, if permitted to stand unused for extended periods (30 days or more), may develop gummy deposits which can adversely affect the engine carburetor and cause engine malfunction. To avoid this condition, add a gasoline stabilizer (available from your dealer) or proceed as follows:

1. Prior to shutdown for 30 days or more, and for seasonal storage, drain gasoline from fuel tank. It is not necessary to drain tank if stabilizer is used.

2. Run engine until fuel tank is empty and engine stops due to lack of fuel.
3. Remove spark plug and pour one (1) ounce of engine oil through spark plug hole into cylinder. Crank engine several times to distribute oil. Reinstall spark plug.
4. Clean the snowthrower thoroughly; remove all debris and wipe the snowthrower dry. Coat all exposed bare metal parts with a good quality paint (available from your dealer) or a light film of grease, oil or automotive wax.
5. Inspect the snowthrower for worn or damaged parts; tighten all loose hardware.
6. Oil all points described in paragraph Lubrication.
7. Store snowthrower in wheels down, operating position. If stored in any other position, oil from crankcase could enter cylinder head, causing a service problem. Store in protected area and cover for additional protection.

Important: A yearly checkup or tuneup by your dealer is a good way of insuring that your snowthrower will provide maximum performance for the next season.

STARTING AFTER STORAGE

1. Remove spark plug and wipe dry. Crank engine a few times to blow excess oil out of plug hole. Clean and inspect spark plug (see Engine Manual). Reinstall plug.
2. Fill gas tank with fresh gasoline (unless a gasoline stabilizer was used).

Normal Care

3. Check to make sure engine is clean.
4. Start engine outdoors. Do not run engine at high speeds immediately after starting.
5. Check operation of controls. Lubricate as instructed in Lubrication Chart (figure 2).

LUBRICATION

For lubrication points, frequency of lubrication and type of lubricant, see Lubricant Chart (figure 2).

1. Check crankcase oil level before starting engine and after each 5 hours of continuous use. Add oil as required. Change crankcase oil after first 2 hours of operation and every 25 hours of operation thereafter, or at beginning of each season. To drain oil, proceed as follows:
 - a. Remove oil fillcap/dipstick.
 - b. Remove oil drain cap.
 - c. Tip snowblower toward oil drain cap and drain oil into a suitable container. Oil will drain more freely when warm.
 - d. Reinstall oil drain cap and tighten securely and fill crankcase to proper level shown on dipstick (approximately 21 oz.). Reinstall oil fill cap/dipstick.
2. The auger gear case has been factory lubricated for life. If for some reason lubricant should leak out, have auger gear case checked by your dealer. To check level, remove the check plug (figure 3). The fluid should be level with the hole. If not, add worm gear oil (available from your dealer).

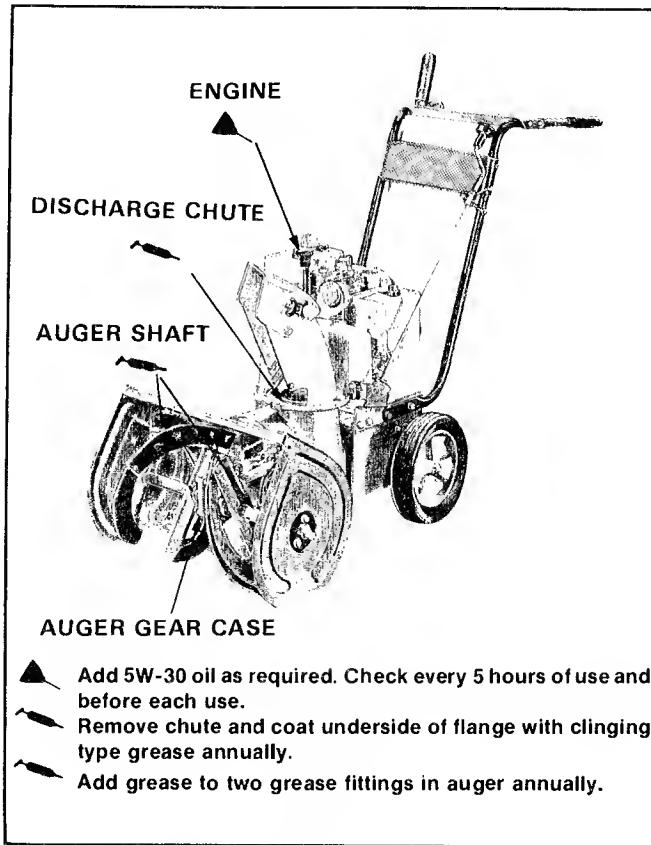


Figure 2. Lubrication Chart

Service

WARNING

Always disconnect the spark plug wire and tie back away from spark plug before making any repairs or adjustments.

TROUBLESHOOTING

Locate the problem in the Troubleshooting Chart. Check the possible causes. Correct any problems and try to operate the snowthrower again to see if you have eliminated the problem.

This section provides troubleshooting and service instructions. For problems not covered, contact your dealer.

TROUBLESHOOTING CHART

PROBLEM	CAUSE	REMEDY
Difficult starting; Engine runs erratic	Defective spark plug.	Replace defective plug.
	Blocked fuel line or empty gas tank	Clean fuel line; check fuel supply.
		Review paragraph To Start Engine
Engine stalls; Loss of power; Engine runs erratic	Engine running on CHOKE	Set choke lever to RUN position.
	Obstruction in auger housing	Remove obstruction; clean auger housing. Refer to Warning on page 2.
	Water in fuel system	Remove carburetor bowl to drain fuel. Refill with fresh fuel. CAUTION: Do not remove carburetor bowl when engine is hot.
Excessive vibration	Loose parts; Damaged auger	Stop engine immediately; tighten all bolts and make all necessary repairs. If vibration continues, have the snowthrower serviced by your dealer.

PROBLEM	CAUSE	REMEDY
Snowthrower fails to discharge snow	Auger drive belt loose or damaged	Adjust auger drive belt; replace if damaged. Refer to Drive Belt Adjustment paragraph or Drive Belt Replacement paragraph.
	Shear pin broken	Replace shear pin. Refer to Shear Pin Replacement paragraph.
	Discharge chute clogged	Clean discharge chute and inside of auger housing. Refer to Warning on page 2.
	Foreign object lodged in auger	Remove object from auger. Refer to Warning on page 2.
	Auger gear case trouble	Check auger gear case for broken or bound parts. Have gear case checked by your dealer.
Unit will not propel itself	Scraper bar needs adjustment	Adjust scraper bar. Refer to page 18.

WARNING

Before performing any adjustment in this section, stop the engine, remove the key, and fasten spark plug wire away from plug to prevent accidental starting.

SHEAR PIN REPLACEMENT

The auger assembly is made up of a right and left auger. Each is secured with a shear pin (figure 3). These pins are designed to break (to prevent damage to snowblower) if an object becomes lodged in the auger. Two shear pins have been furnished with your snowblower. If additional pins are required, order genuine replacement pins. Use of a harder pin will destroy the protection provided by this special pin. To replace a broken shear pin proceed as follows:

1. Disconnect spark plug wire, tie wire away from plug and remove the parts of the broken pin.
2. Align the hole in the auger with the hole in the auger shaft. Install new shear pin and cotter pin.
3. Reconnect spark plug wire.

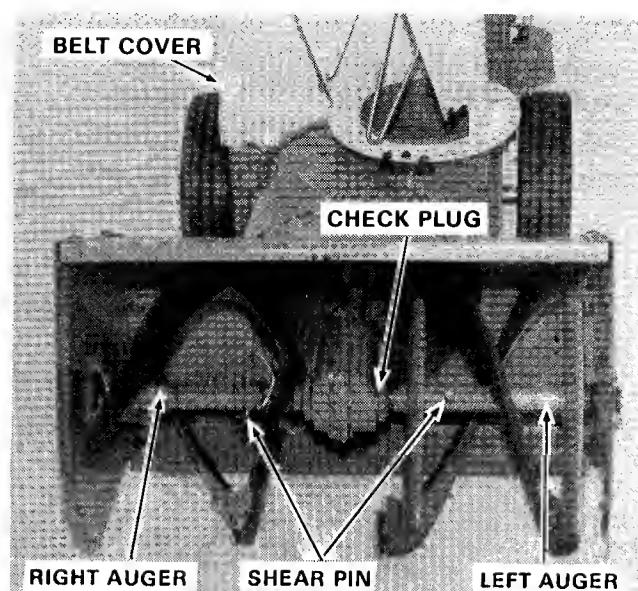


Figure 3. Shear Pins, Check Plug and Belt Cover Location

AUGER SHAFT BEARING REPLACEMENT

If auger shaft bearings (at center of auger housing ends) ever need to be replaced, proceed as follows:

1. Disconnect spark plug wire and tie back away from plug.
2. Pry off the E-ring (figure 5).
3. Remove washer(s).
4. Pull bearing off end of shaft.
5. To install new bearing align "flats" with hole in housing.
6. Place washer(s) on end of shaft.
7. Install the E-ring securely in the groove.

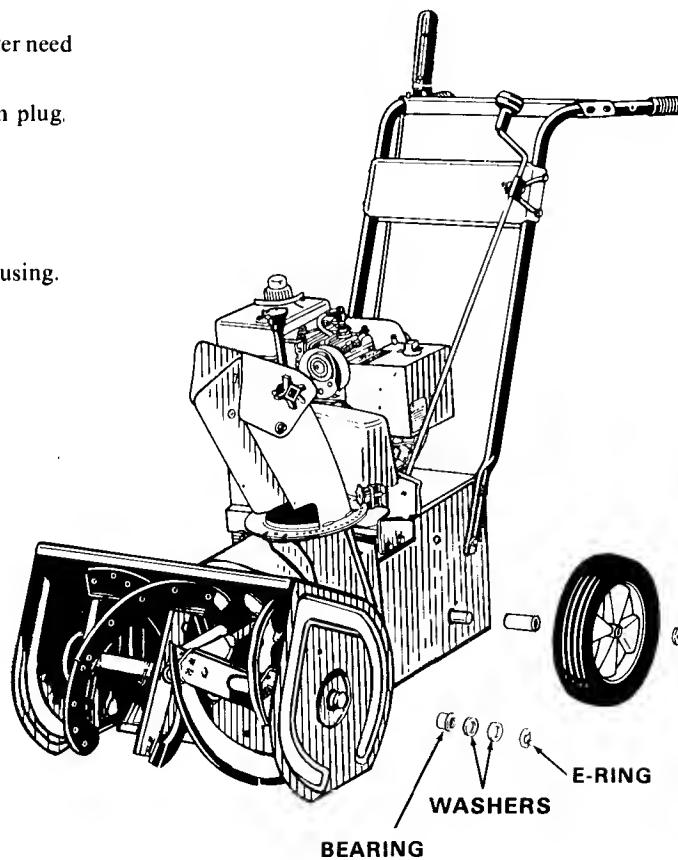
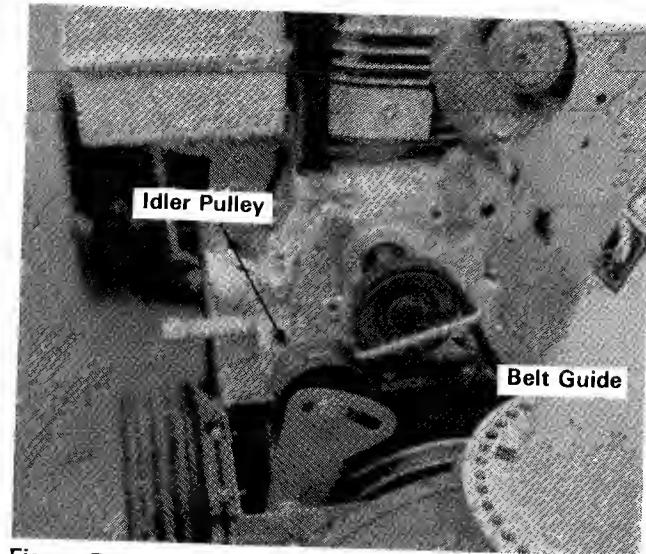


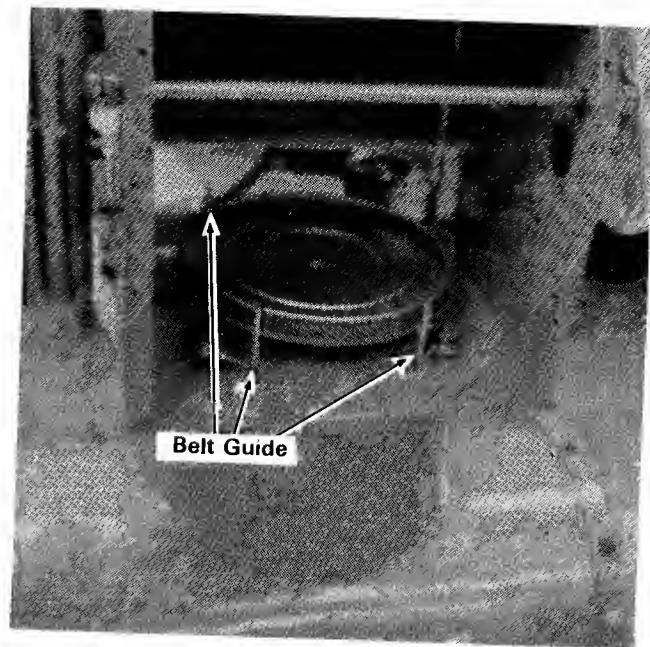
Figure 4. Wheel & Auger Bearing Replacement

DRIVE BELT REPLACEMENT

1. Disconnect spark plug wire, tie back away from plug and remove belt cover (figure 3).
2. Loosen screw holding belt guide (figure 5).
3. Remove belt from pulley (figure 5). Pivot belt guide as necessary.

**Figure 5.**

4. Remove the bottom pan

**Figure 6.**

5. Loosen nuts holding three lower belt guards (figure 6) and pivot away from belt.
6. Remove belt from pulley.
7. Install new belt in reverse order.

8. Position belt guides back to within 1/16 inch of large drive pulley and tighten nuts.
9. Place new belt onto engine pulley
10. Adjust belt guide 1/16 to 1/8 inch from belt with auger lever engaged (figure 5). Tighten belt guide.
11. The idler pulley should be positioned on right-hand side of slot. This will allow future adjustment of pulley toward belt to tighten in case of belt wear.
12. Reinstall belt cover and pan, and reconnect spark plug wire.
13. Test operate. The auger should rotate when clutch lever is held down, and stop when lever is released. If auger does not rotate, move idler pulley toward belt. If auger does not stop, make sure belt guides are 1/16 to 1/8 inch from belt when engaged. If auger still does not stop, move idler pulley away from belt in slot.

BELT ADJUSTMENT

If adjustment becomes necessary due to wear or stretch of either belt:

1. Disconnect spark plug wire, tie back away from plug and remove belt cover.

2. Loosen locknut on idler pulley (figure 5) and move idler pulley 1/4 inch toward belt. Determine if additional adjustment is needed by trying unit.
3. Adjust the belt guide 1/16 to 1/8 inch away from belt with clutch lever engaged..
4. Determine if additional adjustment is necessary by trying unit.

SCRAPER BAR ADJUSTMENT

As the rubber on the auger wears, it may be necessary to adjust the scraper bar (figure 7).

The scraper bar can be moved up or down by loosening the mounting screws. It should be adjusted so that the rubber of the auger touches the surface, and scraper bar is slightly above the surface (1/16") (with snowthrower in operating position). When scraper bar can no longer be adjusted, the rubber flites should be replaced.

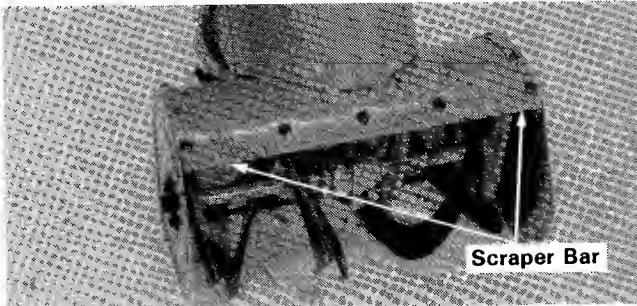


Figure 7.

PARTS MANUAL AVAILABLE

Simplicity parts manuals are fully illustrated. All of the assemblies are shown in exploded views which show the relationship of the parts and how they go together. Important assembly notes and special torque values are included in the illustrations. For standard hardware, a torque specifications chart is included.

To order a Parts Manual for your snowblower, fill out the form and enclose it in an envelope with a check or money order made out **SIMPLICITY**.

Simplicity Manufacturing, Inc.
Attn: Cashier
500 N. Spring Street
P.O. Box 997
Port Washington, WI 53074-0997

**Extend Equipment Life - Use Only Genuine
Simplicity Repair Parts**

I would like a Parts Manual (TP-1104-02) for my 450 Snowblower. I
am enclosing a check or money order for \$5.00.

Simplicity Manufacturing, Inc.
Attn: Cashier
500 N. Spring Street
P.O. Box 997
Port Washington, WI 53074-0997

(Print clearly, this will be your mailing label.

NAME _____

STREET OR RFD _____

CITY _____ STATE _____ ZIP _____

Specifications

ENGINE

Make: Tecumseh

Cylinders: 1

Cycles: 4

Crankshaft: Horizontal

Model No.: See engine I.D. plate

Type: See engine I.D. plate

Bore & Stroke: 2-1/2 in. (63.51 mm) x 1-15/16 in. (49.23 mm)

Ignition: Solid State

Governor: Mechanical

Choke: Manual

Lubrication: Splash System

Oil Capacity: See Engine Manual

Fuel Capacity: See Engine Manual

DRIVE

Axle: Solid

Tires: 10 in. x 2.5 in. Semi-pneumatic, Rib Tread

IMPELLER

Construction: 4 steel blades

Diameter: 10 in. (25.4 cm)

Bearings: Prelubricated and sealed ball bearing

AUGER

Construction: Rubber flite riveted to steel flite

Bearings: Ultra High Molecular Weight Polyethylene

BLOWER HOUSING

Construction: Welded Steel Stampings

Effective Width: 20 in. (50.8 cm)

Auger Opening Height: (14 in. (35 cm)

Spout: 186° rotation with adjustable deflector

Scraper Bar: Wear resistant steel

AUGER & IMPELLER DRIVE

Type: Cushion V-belt and worm gear housing

OVERALL DIMENSIONS & WEIGHT

Length: 52-1/4 in. (133 cm)

Width: 22 in. (56 cm)

Height: 42-1/2 in. (108 cm)

Weight: Shipping (Net) 126-1/2 lbs. (57 kg)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

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